DOCUMENT RESUME

ED 048 929 PS 004 500

AUTHOR	Nummedal, Susan G.; Stern, Carolyn
TITLE	Head Start Graduates: One Year Later.
INSTITUTION	California Univ., Los Angeles.
SPONS AGENCY	Office of Economic Opportunity, Washington, D.C.
PUB DATE	6 Feb 71
NOTE	33p.; Paper presented at the Annual Meeting of the American Educational Research Association, New York, New York, February 6, 1971
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Classroom Environment, Classroom Observation Techniques, *Cognitive Development, *Comparative Analysis, Family Background, *Intellectual Development, Minority Groups, *Program Evaluation, Tables (Data), Testing
IDENTIFIERS	*Head Start

ABSTRACT

To determine the continuing impact of Head Start experience, this follow-up study compared (1) the behavior of children who had Full Year Head Start (FYHS) experience under three different types of agencies, and (2) within each agency, where possible, the behavior of children who did not have FYHS experience. Subjects were 102 FYHS children and 39 non Head Start children. Data were gathered to assess the child's home background as well as his current school environment. A pretest and posttest battery of four instruments was administered to each child and five sets of observations were made in classrooms where subjects were enrolled. Results indicate that children attended markedly contrasting first year of primary school programs. Changes in intellectual functioning were complex and for the most part inconclusive. Difficulties in research design reflected problems consistent with comparative studies of this type. Rather than conclude that FYHS failed to affect a lasting change in children, this study points up the importance of carefully describing the different classroom environments and selecting appropriate comparison groups when attempting to evaluate the long-range effects of Head Start. Numerous tables are included. (WY)

HEAD START GRADUATES: ONE YEAR LATER[1]

by

Susan G. Nummedal and Carolyn Stern

University of California, Los Angeles

[1]This paper was presented at the American Educational Research Association, New York City, February, 1971. The work reported herein was carried out at the Early Childhood Research Center, Dr. Carolyn Stern, Director. This Center is funded by Grant CG 4117 from the Office of Economic Opportunity.

HEAD START GRADUATES: ONE YEAR LATER

Susan G. Nummedal and Carolyn Stern
University of California, Los Angeles

With the proliferation of compensatory preschool programs during the past decade has come the need to evaluate both the immediate and long-range effects of such programs. As the recent controversies over evaluation results attest (e.g., Hechinger, 1969; Jensen, 1969), interpretations of these results yield considerable disagreement as to the nature of the immediate or extended impact of these programs. This is in large part due to the fact that Head Start is not a unitary program but rather varies from agency to agency in terms of variables such as teacher preparation, program orientation, parental participation, and student characteristics, thus making assessment and interpretation a most complex task. Too often studies have been conducted when only a post hoc design could be employed, owing to the fact that by the time the evaluation was designed, the independent treatment variables had already been manipulated and their identification, along with the collection of appropriate dependent measures over the intervention period, had not been accomplished (e.g., Westinghouse Report, 1969). Of necessity, these studies have been unable to determine the effects of program, student, and teacher variables, and have therefore reported "no differen ." findings which result in large part from such insensitive analyses. Thus, there is a continuing need for the kinds of evaluations which are able to identify and reliably measure the critical treatment variables, and meaningfully relate these variables to immediate and long-term changes in children resulting from compensatory educational experiences.

In response to this need to determine the continuing impact of Head rt experience, several of the national Head Start E & R Centers agreed

to follow-up graduates of the 1967-68 Full Year Head Start (FYHS) program after one year of primary school instruction. Because the orientation of Head Start varies with the agencies administering the programs, the UCLA E & R Center conducted a follow-up study comparing (1) the behavior of children who had FYHS experience under different types of agencies, and (2) within each agency, where possible, the behavior of children who did and did not have FYHS experience.

Sample

The agencies selected were (a) a Community Action Program (CAP), (b) two Local Educational Agency programs (LEA-1 and LEA-2), and (c) a program on an Indian Reservation (IR). All children who had attended 1967-68 FYHS under each of these agencies and who were concluding their first year of primary school education in the same geographical location in the spring of 1969 were included in the follow-up sample. There were 22 CAP, 16 LEA-1, 20 LEA-2, and 44 IR children in the FYHS sample. In addition, 1968-69 classmates of the FYHS children who had had no previous HS experience were selected as the Non-Head Start (Non-HS) comparison group. These included 22 CAP, 12 LEA-1, and 5 IR children.* In the spring of 1969, the CAP and LEA children were completing kindergarten and the IR children were completing the first grade, their FYHS experience having occurred during kindergarten.

The mean ages and standard deviations of the sample of FYHS and comparison children within each agency are presented in Table 1.

As might be expected, the ethnicity of over 90% of the IR children was American Indian and this percentage was comparable for both the FYHS

*There were no LEA-2 classmates of FYHS children who met the criteria for the comparison sample

Table 1. Mean Ages and Standard Deviations[a] of FYHS and Non-HS Children within the IR, CAP, and LEA Agencies.

	FYHS			NON-HS		
AGENCY	N	MEAN AGE	STANDARD DEVIATION	N	MEAN AGE	STANDARD DEVIATION
IR	44	6.78	.30	5	6.82	.44
CAP	26	5.74	.27	22	5.83	.29
LEA-1	16	5.74	.31	12	5.97	.21
LEA-2	20	6.04	.29			

[a]Mean Ages and Standard Deviations are given in years.

and Non-HS IR groups. Within the CAP and LEA Agencies the greatest percentage of the children were Mexican-American (Table 2). However a comparison of FYHS and Non-HS CAP children reveals that while approximately 40% of the children in each group were Mexican-American, there was a greater percentage of Black children in the FYHS than Non-HS group (i.e., 50% vs. 18.18%) while the Non-HS group had a greater percentage of Anglo children than the FYHS group (i.e., 36.36% vs. 3.85%). Within LEA-1 there was a substantial percentage of Anglo children in the Non-HS group (41.67%) which was not matched in the FYHS group (0.00%). Thus the ethnicity of the IR FYHS and Non-HS groups was comparable whereas FYHS and Non-HS CAP and LEA-1 children did differ in ethnic background.

Within each of the FYHS and Non-HS groups, at least 60% of the children came from homes in which both fathers and mothers were present (Table 3).

The occupational and educational levels of fathers and mothers of FYHS and Non-HS children are presented in Tables 4 and 5. The majority of

Table 2. Percentage of FYHS and Non-HS Children within IR, CAP, and LEA Agencies with Differing Ethnic Backgrounds

Agency		N	ETHNIC BACKGROUND Black	Mexican American	Anglo	American Indian	Mixed
IR	FYHS	44	--	--	--	90.91	9.09
	NON-HS	5	--	--	--	100.00	--
	TOTAL	49	--	--	--	91.84	8.16
CAP	FYHS	26	50.00	46.15	3.85	--	--
	NON-HS	22	18.18	40.91	36.36	4.55	--
	TOTAL	48	35.42	43.75	18.75	2.08	--
LEA-1	FYHS	16	12.50	81.25	--	--	6.25
	NON-HS	12	--	41.67	41.67	--	16.67
	TOTAL	28	7.14	64.29	17.86	--	10.71
LEA-2	FYHS	20	--	75.00	20.00	--	5.00

Table 3. Percentage of FYHS and Non-HS Children within IR, CAP, and LEA Agencies with Differing Family Structures.

Agency		N	FAMILY STRUCTURES			
			Father & Mother	Mother Only	Guardian Only	Other Adult
IR	FHYS	44	75.00	15.91	2.27	6.82
	NON-HS	5	60.00	20.00	20.00	--
	TOTAL	49	73 47	16.33	4.08	6.12
CAP	FYHS	25	76.00	24.00	--	--
	NON-HS	22	72.73	27.27	--	--
	TOTAL	47	74.47	25.53	--	--
LEA-1	FYHS	15	60.00	40.00	--	--
	NON-HS	12	91.67	--	8.33.	--
	TOTAL	27	74.07	22.22	3.71	--
LEA-2	FYHS	19	73.68	26.32	--	--

Table 4. Percentage of Fathers (F) and Mothers (M) of FYHS and Non-HS Children within IR, CAP, and LEA Agencies at Differing Educational Levels.

Agency		N F	N M	HIGHEST GRADE COMPLETED 1-3 F	1-3 M	4-6 F	4-6 M	7-8 F	7-8 M	9-11 F	9-11 M	High School F	High School M	Some College F	Some College M
IR	FYHS	28	39	--	--	3.57	2.56	28.57	35.90	39.29	35.90	28.57	23.08	--	2.56
	NON-HS	3	1	--	--	--	--	--	100.00	66.67	--	33.33	--	--	--
	TOTAL	31	40	--	--	3.23	2.50	25.81	37.50	41.93	35.00	29.03	22.50	--	2.50
CAP	FYHS	15	23	13.33	13.04	33.33	21.74	--	--	20.00	26.09	33.33	34.78	--	4.35
	NON-HS	15	22	6.67	4.55	13.33	9.09	20.00	13.63	20.00	22.73	13.33	40.91	26.67	9.09
	TOTAL	30	45	10.00	8.89	23.33	15.56	10.00	6.67	20.00	24.44	23.33	37.78	13.33	6.67
LEA-1	FYHS	12	15	8.33	--	25.00	20.00	50.00	26.67	16.67	40.00	--	13.33	--	--
	NON-HS	10	11	--	9.09	20.00	--	--	9.09	30.00	36.36	40.00	36.37	10.00	9.09
	TOTAL	22	26	4.56	3.85	22.73	11.53	27.27	19.23	22.73	38.46	18.18	23.08	4.55	3.85
LEA-2	FYHS	12	17	16.67	23.53	8.33	23.53	8.33	17.65	41.67	11.76	16.67	17.65	8.33	5.88

Table 5. Percentage of Fathers (F) and Mothers (M) of FYHS and Non-HS Children within IR, CAP, and LEA Agencies at Differing Occupational Levels.

Agency		N F	N M	OCCUPATIONAL LEVEL: Unemployed F	Unemployed M	Unskilled Worker F	Unskilled Worker M	Semi-skilled Worker F	Semi-skilled Worker M	Skilled Worker F	Skilled Worker M	Owner of Small Business F	Owner of Small Business M
IR	FYHS	35	42	11.43	66.67	42.85	11.90	22.86	19.05	20.00	2.38	2.86	--
	NON-HS	4	5	75.00	100.00	25.00	--	--	--	--	--	--	--
	TOTAL	39	47	17.95	70.21	41.03	10.64	20.51	17.02	17.95	2.13	2.56	--
CAP	FYHS	18	20	--	60.00	38.89	10.00	27.78	10.00	22.22	5.00	11.11	15.00
	NON-HS	16	22	--	63.64	62.50	18.18	37.50	18.18	--	--	--	--
	TOTAL	34	42	--	61.90	50.00	14.29	32.35	14.29	11.77	2.38	5.88	7.14
LEA-1	FYHS	3	8	33.33	87.50	33.33	12.50	33.33	--	--	--	--	--
	NON-HS	12	12	8.34	83.34	33.33	8.33	33.33	8.33	25.00	--	--	--
	TOTAL	15	20	13.34	85.00	33.33	10.00	33.33	5.00	20.00	--	--	--
LEA-2	FYHS	13	14	7.69	71.43	76.93	21.43	7.69	7.14	7.69	--	--	--

parents of FYHS and Non-HS children within each agency had less than a high school education. The modal occupational level for fathers was unskilled work, while for mothers no employment was the rule.

Procedure

The follow-up test battery consisted of four instruments:

1. Wechsler Preschool and Primary Scale of Intelligence (WPPSI) or, in the case of the older IR children, the Wechsler Intelligence Scale for Children (WISC), both of which assess intellectual functioning;
2. Factors Affecting Test Performance (FATP), a rating scale of the child's behavior with relation to test items and the examiner, which was completed following administration of the WPPSI or WISC;
3. Birch-Hertzig Response Style Scoring Procedure (BHRS), adapted for use with the WPPSI and WISC and a measure of the child's response style to each test item in terms of work-nonwork and verbal-nonverbal dimensions; and
4. Gumpgookies, a test of the child's achievement motivation.

To assess the child's educational environment, data was gathered on the characteristics of the teacher, the school, and the classroom.

Longitudinal Assessment. For those children having 1967-68 FYHS experience under CAP and LEA agencies, measures of intellectual functioning and content of the FYHS program were available for longitudinal analyses. The Stanford-Binet was administered to these children in the fall of 1967 and again in the spring of 1968, thus providing a measure of pre-post FYHS intellectual functioning. In addition, five sets of classroom observations were made during FYHS 1967-68, using the UCLA Observation of Substantive Curricular Interactions (OSCI). The OSCI is a time-sample

procedure which assesses the content of learning environments in terms of four factors: (1) cognitive-low structure activities, (2) routines and rules, (3) cognitive-high structure activities, and (4) child-centered-unstructured activities.

Results

Classroom Characteristics

For each class in which FYHS and Non-HS children were enrolled during the 1968-69 school year, a Classroom Characteristics Form was completed by the teacher. The total IR sample was enrolled in 14 classes, the CAP sample in 14, the LEA-1 sample in 12, and the LEA-2 sample in 6. Although in several instances one teacher taught more than one class (e.g., a morning and an afternoon kindergarten class), for each agency, all the classes in which the sample children were enrolled were used in the analysis of the educational environment of the children.

Two particular pieces of information on the Classroom Characteristics Form served to construct a picture of the educational environment of the children during their first year of primary school education. Each teacher was asked to choose from a list of fourteen the three items, or program foci, which best characterized her education program. Table 6 lists the 14 items and, for each agency, the frequency with which each item was selected. For each frequency, the percentage based on the total number of teachers' choices was calculated.

Selection of items 2, 9, 13, and 14 reflected a social-emotional adjustment emphasis, whereas items 6, 8, 10, 11, and 12 indicated an academically-oriented program. Summing across the first group of items shows that the percentage of social-emotional program emphasis was 52.38%

Table 6. Program Focus of Follow-Up Classes within IR, CAP, LEA-1, and LEA-2 Agencies[a].

Program Focus	IR		CAP		LEA-1		LEA-2	
	N	%	N	%	N	%	N	%
1 Parent centered	2	4.76	6	14.29	7	19.44	2	11.11
2 Child centered								
3 Family centered								
4 Teacher centered								
5 Material centered					1	2.78		
6 Task-Oriented	1	2.38	2	4.76			2	11.11
7 Mental health-oriented								
8 Language oriented	5	11.90	8	19.05	2	5.56		
9 Social-experience oriented	3	7.14	2	4.76	8	22.22	4	22.22
10 Concept-oriented	2	4.76	4	9.52	2	5.56		
11 Academically-oriented	3	7.14	4	9.52	2	5.56		
12 Reading-oriented	9	21.43						
13 Self-concept-oriented	10	23.81	10	23.81	3	8.33	6	33.33
14 The "whole child" oriented	7	16.67	6	14.29	11	30.55	4	22.22
Total Number of Choices	42		42		36		18	
Total Number of Classes	14		14		12		6	

[a]Three program foci were chosen for each class.

for the IR group, 57.15% for the CAP group, 80.54% for the LEA-1 group, and 88.88% for the LEA-2 group. A similar calculation for the second group of items showed an academic focus of 47.61% for the IR program, 42.85% for the CAP program, 16.68% for the LEA-1 program, and 11.11% for the LEA-2 program. In general, the educational programs for all the agencies emphasized the social-emotional development of the child. However, more than 80% of the total program for the LEA-1 and LEA-2 classes focused on the social-emotional adjustment of the child with virtually no academic emphasis, while the IR and CAP classes devoted more than 40% of their total program to academically-oriented activities.

For each class, teachers were also asked to select from a list of 38 educational goals the five that best described their educational program. The form specified only 38 goals but the teachers were invited to list additional goals where they felt it necessary. Table 7 lists these goals plus four goals generated by the teachers and, for each agency, the frequencies with which each goal was selected. For each frequency in the table the percentage based on the total number of teachers' choices was also calculated.

Inspection of the list of goals indicated that 12 reflected an academic orientation. These are goals 10, 12, 13, 15, 16, 22, 26, 29, and 38 through 41. For each agency, adding the percentages corresponding to these items revealed that academic goals comprised 37.15% of the IR program, 29.40% of the CAP program, 19.99% of the LEA-1 program, and 13.34% of the LEA-2 program.

This data combined with those on program foci indicated that the IR and CAP groups spent their first year of primary schooling in educational environments which emphasized academic skills and activities

Table 7. Educational Goals of Follow-Up Classes within IR, CAP, LEA-1, and LEA-2 Agencies[a].

EDUCATIONAL GOALS	IR		CAP		LEA-1		LEA-2	
	N	%	N	%	N	%	N	%
1 Participation in group activities					1	1.67	4	13.33
2 Trust of adults	2	2.86			2	3.33		
3 Use of books, paper, pencils, etc.					2	3.33	2	6.67
4 Observing safety habits	2	2.86			3	5.00		
5 Going to the toilet alone								
6 Tidiness								
7 Handling books carefully								
8 Enjoying stories								
9 Standing up for his own rights	1	1.43						
10 Reading	6	8.57						
11 Speaking more	1	1.43	2	2.94				
12 Solving problems	2	2.86	8	11.76				
13 Using what he knows more effectively	3	4.29	4	5.88	2	3.33		
14 Speaking clearly								
15 Thinking logically	5	7.14			2	3.33		
16 Identifying causal relationships	1	1.43						
17 Enjoying other children	1	1.43			6	10.00		
18 Accepting new people without fear	1	1.43			2	3.33		
19 Taking turns					1	1.67		
20 Feeling secure in a school situation	6	8.57	8	11.76	11	18.33	4	13.33
21 Caring for and picking up materials								
22 Following directions	4	5.71	4	5.88	4	6.67		
23 Putting on and taking off own wraps								
24 Completing task before starting another	2	2.86	4	5.88				
25 Observing good health practices								
26 Verbal communication	1	1.43	2	2.94	2	3.33	2	6.67
27 Working and playing cooperatively	3	4.29	4	5.88	5	8.33	4	13.33
28 Respecting the rights of others	7	10.00	8	11.76	6	10.00	4	13.33

[a]Five educational goals were chosen for each class.

Table 7 (Cont.). Educational Goals of Follow-Up Classes within IR, CAP, LEA-1, and LEA-2 Agencies[a].

EDUCATIONAL GOALS	IR		CAP		LEA-1		LEA-2	
	N	%	N	%	N	%	N	%
29 Sharing ideas and materials	1	1.43			2	3.33	2	6.67
30 Using good table manners								
31 Working independently	5	7.14	4	5.88			2	6.67
32 Leading effectively	1	1.43						
33 Following effectively	1	1.43						
34 Accepting group decisions	1	1.43			4	6.67		
35 Expressing feelings	3	4.29	2	2.94				
36 Being confident of himself	7	10.00	14	20.59	5	8.33	6	20.00
37 Accepting authority								
38 Mastery of quantitative concepts								
39 Listening	1	1.43	2	2.94				
40 Responding	1	1.43						
41 Writing	1	1.43						
42 Excitement toward learning			2	2.94				
Total Number of Choices	70		68[b]		60		30	
Total Number of Classes	14		14		12		6	

[a] Five educational goals were chosen for each class.

[b] For two classes, only four educational goals were selected.

related to their cognitive development. In marked contrast, the programs for the LEA-1 and LEA-2 children placed major emphasis on the social-emotional adjustment of the child. These would seem to be important differences influencing the growth of the child during his first primary school year.

WPPSI and WISC

The results of the individual intelligence testing for the FYHS and Non-HS groups are presented in Table 8. The mean IQ for the total FYHS group was 90.07 and the mean IQ for the total Non-HS group was 91.08, indicating no difference between the two groups.

Three one-way analyses of variance on differences between the FYHS, IR, CAP, LEA-1, and LEA-2 mean (1) Verbal, (2) Performance, and (3) Full Scale IQ Scores revealed significant differences among the four groups on all three scores (Table 9). For each of the three IQ scores, Newman-Keuls tests of differences between all pairs of means were conducted. These tests indicated that (1) the IR group obtained a significantly higher Verbal IQ than the LEA-1 ($p<.05$) and LEA-2 ($p<.01$)groups; and (2) the IR group had significantly higher Performance and Full Scale IQ scores than each of the other three groups ($p<.01$).

Within each agency, comparisons between FYHS and Non-HS groups were made. No differences in intellectual functioning between the FYHS and Non-HS children in the IR and LEA-1 groups were found. However, the CAP Non-HS children achieved a significantly higher Full Scale IQ ($t=2.11$, $p=.04$) and Performance IQ ($t=2.20$, $p=.03$) than the FYHS children.

Birch-Hertzig Response Style

The Birch-Hertzig Response Style (BHRS) was used as a measure of children's response style during the WPPSI testing. On each test item,

Table 8a. Means and Standard Deviations on WPPSI and WISC Verbal Tests and IQ Score for FYHS and Non-HS, IR, CAP, LEA-1, and LEA-2 Agencies[a].

Agency		N	INFORMATION		VOCABULARY		ARITHMETIC		SIMILARITIES		COMPREHENSION		VERBAL IQ	
			X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
IR	FYHS	44	7.36	2.23	8.36	3.29	8.91	2.18	9.95	3.38	9.20	3.40	92.34	11.73
	NON-HS	5	6.80	1.30	7.80	3.03	8.20	1.92	9.40	3.21	9.20	1.48	89.20	5.45
CAP	FYHS	26	8.15	2.84	6.69	2.71	8.35	2.56	6.77	3.51	7.96	2.62	84.69	14.76
	NON-HS	22	8.86	2.00	8.05	3.62	8.75	1.98	8.55	2.79	9.36	3.03	91.36	13.53
LEA-1	FYHS	16	7.13	2.16	6.81	1.38	7.63	2.39	7.31	2.36	6.00	1.71	81.38	7.39
	NON-HS	12	6.42	2.87	5.58	2.64	7.33	2.10	6.92	3.26	6.58	3.63	78.42	14.76
LEA-2	FYHS	18	7.11	2.78	5.39	2.83	7.39	3.16	5.61	2.53	6.06	2.78	77.11	15.05
TOTAL	FYHS	104	7.48	2.48	7.19	3.02	8.31	2.54	8.00	3.57	7.86	3.17	86.11	13.80
	NON-HS	39	7.85	2.49	7.26	3.39	8.23	2.06	8.15	3.04	8.49	3.28	87.10	14.22

[a]IR children were administered the WISC; all other children were administered the WPPSI.

Table 8b. Means and Standard Deviations on WPPSI and WISC Performance Tests and IQ Score for FYHS and Non-HS, IR, CAP, LEA-1, and LEA-2 Agencies[a].

Agency		N	ANIMAL HOUSE[b]		PICTURE COMPLETION		MAZES[b]		GEOMETRIC DESIGN[b]		BLOCK DESIGN		PERFORMANCE IQ	
			X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
IR	FYHS	44			11.43	2.94					9.48	2.26	104.25	11.83
	NON-HS	5			11.80	3.70					10.80	1.30	99.00	10.77
CAP	FYHS	26	8.96	2.79	8.19	2.17	8.65	2.73	9.00	3.15	9.00	2.65	91.58	13.00
	NON-HS	22	9.32	2.50	9.33	2.19	10.35	2.92	10.00	3.16	10.45	3.10	99.41	11.38
LEA-1	FYHS	16	7.69	2.47	7.06	3.28	8.94	2.17	8.88	3.74	8.00	2.99	87.00	15.80
	NON-HS	12	9.33	2.77	7.25	2.96	10.08	2.47	8.50	3.45	8.83	2.48	91.92	12.43
LEA-2	FYHS	18	7.17	2.04	8.06	3.47	10.00	2.28	9.06	2.29	9.56	2.20	91.28	11.04
TOTAL	FYHS	104	8.08	2.59	9.40	.33	9.13	2.49	8.98	3.04	9.14	2 49	96.18	14.37
	NON-HS	39	9.32	2.56	9.00	2.95	10.26	2.73	9.47	3.30	10.00	2.81	97.05	11.86

[a] IR children were administered the WISC; all other children were administered the WPPSI.

[b] Subtests not included in WISC.

Table 8c. Means and Standard Deviations on WPPSI and WISC Full IQ Scores for FYHS and Non-HS, IR, CAP, LEA-1, and LEA-2 Agencies[a].

Agency		N	FULL IQ $\bar{X}$	S.D.
IR	FYHS	44	97.84	10.40
	NON-HS	5	93.00	7.35
CAP	FYHS	26	87.04	13.94
	NON-HS	22	94.91	11.56
LEA-1	FYHS	16	82.63	11.55
	NON-HS	12	83.25	11.96
LEA-2	FYHS	18	82.06	13.10
TOTAL	FYHS	104	90.07	13.71
	NON-HS	39	91.08	12.21

[a]IR children were administered the WISC; all other children were administered the WPPSI.

Table 9. Summary of Analyses of Variance for FYHS IR, CAP, LEA-1, and LEA-2 (1) Verbal, (2) Performance, and (3) Full Scale IQ Scores.

(1) Verbal IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	3	3576.87	1192.29	7.43	p<.01
Within Groups	100	16038.91	160.39		
Total	103	19615.79			

(2) Performance IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	3	5197.30	1732.43	10.79	p<.01
Within Groups	100	16058.20	160.58		
Total	103	21255.50			

(3) Full Scale IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	3	4939.00	1646.33	11.41	p<.01
Within Groups	100	14425.51	144.26		
Total	103	19364.51			

the child was scored as (1) either working or not working at the item and (2) either responding verbally or nonverbally. Each child was given eight scores corresponding to the percentage of verbal, nonverbal, work, and nonwork responses on the (1) Verbal and (2) Performance Tests.

The BHRS was completed for all CAP and LEA children given the WPPSI. The results for the FYHS and Non-HS groups are presented in Table 10. Differences between FYHS and Non-HS children within the CAP and LEA-1 groups on the eight scores were statistically nonsignificant by t-tests. On the Verbal Tests, CAP FYHS children did respond verbally to items significantly more often than did LEA-1 children. That is, for the verbal response, a t-test on the difference between the means of the two groups yielded a t-value of 3.15 ($p<.01$). On the Performance Tests, the CAP children worked at items significantly more often than the LEA-1 children ($t=2.25$, $p<.05$).

Factors Affecting Test Performance

The Inventory of Factors Affecting Test Performance (FATP), a rating scale of the child's test taking behavior, was filled out by the examiner after administration of the WPPSI or WISC. The FATP consists of ten factors which measure the child's generalized responses to the test taking situation and his more specific responses to the examiner and the test itself. On each factor, the child is rated as either not being adversely affected during the test, or, if affected, the degree to which his performance was impaired.

The FATP was completed for IR and LEA-1 children only. The number of FYHS and Non-HS children adversely and not adversely affected on each factor is presented in Table 11. The Fisher Test was used to analyze whether FYHS and Non-HS children were differentially affected by the

Table 10. Means and Standard Deviations on BHRS Verbal and Performance Tests for FYHS and Non-HS CAP, LEA-1, and LEA-2 Agencies.

Agency		N	VERBAL X	VERBAL S.D.	NONVERBAL X	NONVERBAL S.D.	WORK X	WORK S.D.	NONWORK X	NONWORK S.D.
VERBAL TESTS										
CAP	FYHS	26	93.12	8.06	6.88	8.06	82.96	12.12	17.04	12.12
	NON-HS	22	96.64	3.70	3.36	3.70	85.41	11.38	14.59	11.38
LEA-1	FYHS	15	78.88	16.93	21.13	16.93	74.38	14.92	25.63	14.92
	NON-HS	12	83.25	24.61	16.75	24.61	71.83	21.68	28.17	21.68
LEA-2	FYHS	18	89.00	20.49	11.00	20.49	67.50	24.33	32.50	24.33
PERFORMANCE TESTS										
CAP	FYHS	26	26.81	5.78	73.19	5.78	96.81	4.32	3.19	4.32
	NON-HS	22	27.73	7.23	72.27	7.23	97.27	2.85	2.73	2.85
LEA-1	FYHS	16	27.88	10.13	72.12	10.13	92.81	6.27	7.19	6.27
	NON-HS	12	27.08	13.97	72.92	13.97	93.25	6.78	6.75	6.78
LEA-2	FYHS	18	32.50	16.56	67.50	16.56	94.00	5.90	6.00	5.90

Table 11. FATP Ratings for FYHS and Non-HS IR and LEA-1 Groups Not Adversely Affected (N) and Adversely Affected (A) by the Testing Situation.

Factors		IR		LEA-1	
		FYHS (N=44)	NON-HS (N=5)	FYHS (N=16)	NON-HS (N=12)
1 Gives the test attention required	N	29	1	10	8
	A	14	4	6	4
2 Realistic sense of competence	N	20	1	7	6
	A	23	4	9	6
3 Adequate response time	N	23	2	7	8
	A	20	3	9	4
4 Matter of fact about tasks or enjoys them	N	31	1	4	6
	A	12	4	12	6
5 Adequately persists in face of difficulty	N	26	1	7	8
	A	17	4	9	4
6 Reacts to failure realistically	N	31	4	9	7
	A	12	1	7	5
7 Feels socially at ease	N	19	1	5	5
	A	24	4	11	7
8 Responds to normal encouragement	N	23	3	9	8
	A	20	2	7	4
9 Normal activity level	N	31	3	11	9
	A	12	2	5	3
10 Normal verbal expression	N	17	2	5	8
	A	26	3	11	4

testing situation. Comparisons on each factor between the proportions of FYHS and Non-HS LEA-1 children adversely affected indicated no differences between the groups. In the comparison of FYHS and Non-HS IR children, there were significant differences in the proportions of FYHS and Non-HS children adversely affected on Factors 1 and 4. That is, proportionately more Non-HS than FYHS children were easily distracted ($p<.004$) and demonstrated negative affect toward the tasks ($p=.05$). Fisher Test analysis of differences between IR and LEA-1 FYHS children indicated no differences between the groups on nine of the ten factors. On Factor 4, the LEA-1 FYHS group was more adversely affected than the IR FYHS group ($p<.01$).

Gumpgookies

The Gumpgookies, a test of achievement motivation, consisted of 55 items. The child's score is the number of items on which he demonstrated achievement motivation. The test was administered to the seven FYHS and Non-HS groups. The means and standard deviations for each group are presented in Table 12. The differences in means both among FYHS groups and within each of the agencies are minimal.

Table 12. Means and Standard Deviations of FYHS and Non-HS IR, CAP, LEA-1, and LEA-2 Groups on Gumpgookies.

		N	$\bar{X}$	S.D.
IR	FYHS	44	48.20	5.77
	NON-HS	4	50.50	2.08
CAP	FYHS	25	42.60	6.89
	NON HS	22	42.64	10.38
LEA-1	FYHS	16	44.94	5.63
	NON-HS	12	47.75	6.48
LEA-2	FYHS	20	43.75	8.90

Longitudinal Analysis

The intellectual functioning of the CAP and LEA FYHS children was assessed at the beginning and end of their FYHS experience using the Stanford-Binet. Thus, for these children it was possible to analyze changes which might have occurred over the two year period of FYHS and kindergarten The means and standard deviations of the pre and post Binet and Full Scale WPPSI IQ scores for the CAP, LEA-1, and LEA-2 children are presented in Table 13.

Analyses of variance on differences among the three groups on pre, post, and follow-up mean IQ scores indicated there were no differences among the groups on their pretest Binet IQ or follow-up WPPSI Full Scale IQ scores. However there was a significant difference on the post test Binet IQ scores of the three groups (Table 14). Newman-Keuls tests on differences between all pairs of means revealed that the LEA-1 group mean IQ of 102.88 was significantly higher than the CAP mean of 92.08 ($p<.05$) and the LEA-2 mean of 88.06 ($p<.01$).

For each of the three FYHS groups, changes in intellectual functioning over the pre, post, and follow-up testing times were analyzed in a single factor, repeated measures analysis of variance (Winer, 1962). These analyses revealed there were significant differences in intellectual functioning over the testing times for CAP and LEA children (Table 15). For each group, Newman-Keuls tests on differences between all pairs of means indicated that there was (1) a significant decrease from posttest to follow-up for the CAP group, and (2) a significant increase from pre- to posttest and a significant decrease from posttest to follow-up for LEA-1 children.

Table 13. Means and Standard Deviations for FYHS CAP, LEA-1, and LEA-2 Pre and Post Binet and Follow-Up Full Scale WPPSI IQ Scores.

		Pre Binet		Post Binet		Follow-Up WPPSI	
Agency	N	X	S.D.	X	S.D.	X	S.D
CAP	26	90.12	15.21	92.08	14.31	84.69	14.76
LEA-1	16	92.63	8.97	102.88	11.91	81.38	7.39
LEA-2	18	87.89	15.64	88.06	13.46	77.11	15.05

Table 14. Summary of Analyses of Variance for FYHS CAP, LEA-1, and LEA-2 (1) Pre Binet, (2) Post Binet, and (3) Full Scale WPPSI IQ Scores.

(1) Pre Binet IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	2	190.00	95.00	.49	n.s.
Within Groups	57	11148.16	195.58		
Total	59	11338.16			

(2) Post Binet IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	2	1988.71	994.36	5.49	p<.01
Within Groups	57	10324.52	181.13		
Total	59	12313.24			

(3) Full Scale WPPSI IQ Scores

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Groups	2	330.28	165.14	.96	n.s.
Within Groups	57	9773.64	171.47		
Total	59	10103.91			

Table 15. Summary of Analyses of Variance on Pre, Post, and Follow-Up IQ Scores for (1) CAP, (2) LEA-1, and (3) LEA-2 Groups.

(1) CAP

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Subjects	25	13372.89			
Within Subjects	52	2687.33			
Testing Times	2	351.87	175.94	3.77	$p<.05$
Residual	50	2335.46	46.71		

(2) LEA-1

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Subjects	15	3457.92			
Within Subjects	32	5160.00			
Testing Times	2	3280.67	1640.34	26.19	$p<.01$
Residual	30	1879.33	62.64		

(3) LEA-2

Source of Variance	d f	Sum of Squares	Mean Square	F	
Between Subjects	17	8097.33			
Within Subjects	36	2478.67			
Testing Times	2	420.33	210.17	3.47	$p<.05$
Residual	34	2058.34	60.54		

Using the Observation of Substantive Curricular Interactions (OSCI) five sets of classroom observations were made during FYHS 1967-68 on the four CAP, two LEA-1, and two LEA-2 classes. The OSCI describes each classroom in terms of four factors. Factor 1 is made up of variables related to cognitive inputs and learning activities in a relatively unstructured environment. Factor 2 contains classroom variables emphasizing rules and routines and large group activities. Factor 3 is described by variables related to cognitive inputs and learning activities carried on in a structured environment. The variables of Factor 4 emphasize social interaction and child centered activities in an unstructured environment (Stern, 1970).

The four factor scores for each of the FYHS CAP and LEA classes are presented in Table 15. It can be seen that, with the exception of LEA-2 Class 2, all of the FYHS programs had in common a child-centered, unstructured emphasis. However, the two LEA-1 classes differed markedly from the CAP and LEA-2 classes in cognitive emphasis, both structured and unstructured. That is, the CAP and LEA-2 classes had negative Factor 1 and 3 scores, indicating an absence of cognitive inputs, while the LEA-1 classes had relatively high positive Factor 1 and 3 scores, indicating a high emphasis on cognitive inputs.

Discussion

Because the Non-HS children were not randomly selected, from those qualified for 1967-68 FYHS, not to receive FYHS experience, there is little assurance that these children even came from the same population as the FYHS children. Differences in sample characteristics of FYHS and Non-HS children within agencies would tend to support this conclusion.

Table 16. OSCI Factor Scores for CAP, LEA-1, and LEA-2 FYHS Classes.

Agency	Class	FACTOR 1 (Cognitive-Low Structure)	FACTOR 2 (Rules and Routines)	FACTOR 3 (Cognitive-High Structure)	FACTOR 4 (Child Centered-Unstructured)
CAP	1	-.58	-1.00	.04	1.68
	2	-.44	-.54	-.61	1.70
	3	-.51	-.40	-.58	1.26
	4	-.37	.73	-.60	1.50
LEA-2	1	-.01	.37	-.32	.84
	2	.13	1.87	-1.05	-.38
LEA-1	1	.30	-.45	.64	1.33
	2	.95	.69	.28	1.70

While studies designed to compare the relative abilities of Head Start and Non-Head Start children require the random assignment of children to experimental and control conditions, the reality is that no child can be denied a preschool experience due to purely design considerations. In some instances design requirements have been met due to practical considerations, such as when a greater number of children are eligible for HS than a program is able to accommodate (e.g., Sontag, Sella, & Thorndike, 1969; Herman and Adkins, 1970). But even in cases where valid control groups are constituted prior to intervention, contact between experimental and control groups may result in the "contamination" of control children, a result which causes serious problems for the experimental design but which may have great benefits for the control children (Klaus and Gray, 1968).

Thus, as with other studies of the impact of Head Start (e.g., Westinghouse Report, 1969), extreme caution must be exercised in interpreting the present findings comparing FYHS and Non-HS children. In general, the results of this study are consistent with others comparing HS and Non-HS children (e.g., Grotberg, 1969; McDill, McDill, & Sprehe, 1969). This investigation indicated that, within each agency, there was little difference between FYHS and Non-HS children in intellectual functioning and achievement motivation. The groups did not seem to be differentially affected by the testing situation or demonstrate differing response styles to intelligence test items. One exception to the above was the superior performance of the Non-HS over the FYHS CAP children on the WPPSI. These two groups also differed in ethnicity and educational level of parents, with the Non-HS parents having more schooling than the FYHS. These

differences in sample characteristics may help explain performance differences.

Results of the OSCI analyses of the FYHS programs and follow-up teachers' reports of what they considered their program foci and educational goals indicated that scores on intelligence tests made by FYHS children were highly related to the types of FYHS and primary school programs the child attended. The LEA-1 group, which made significant gains in intellectual functioning over the HS year, was also the same group which attended a FYHS program emphasizing the development of cognitive abilities. The other FYHS groups attended child-centered, unstructured programs, and they also failed to make gains in intellectual functioning over the HS year. The importance of the educational environment for the cognitive development of the child is further underscored by the fact that the LEA-1 group which made significant gains during FYHS did not retain those gains when they subsequently attended a kindergarten class with a program which placed virtually no emphasis on academic skills but rather focused on social adjustment. Thus with the continued support of an educational program focusing on cognitive development these children might have been able to maintain the gains they had made the previous year.

It has been argued by Kohlberg that "certain cognitive-enrichment programs should be timed later for culturally disadvantaged children because of cognitive retardation, rather than attempting to provide enrichment programs for these children at the age in which more advanced middle class children are presumed to be receiving parallel stimulation" (1968, p. 1045). Evidence from the CAP FYHS group runs counter to such a position. That is, the CAP children attended a

FYHS program which emphasized the social-emotional development of the child, and they made no significant gain in cognitive functioning over that period, as measured by pre- and posttest Binet scores. Their kindergarten experience was in a moderately academically oriented program and, rather than maintaining their post FYHS level of intellectural functioning, their intellectual performance actually decreased over the follow-up year. This evidence would seem to suggest the need for cognitive stimulation during the preschool years.

To conclude from this study that FYHS has failed to affect lasting changes in children or to give them a head start they right otherwise not have without FYHS would be unjustified. Rather this study points up the importance of carefully describing the different classroom environments and selecting appropriate comparison groups when evaluating the long-range effects of Head Start programs.

References

Grotberg, E. H. Review of research 1965 to 1969. Research and Evaluation Office, Project Head Start, U. S. Office of Economic Opportunity, June, 1969.

Hechinger, F. M. Dispute over value of Head Start. New York Times, April 20, 1969

Herman, H. & Adkins, D. C. Hawaii Head Start evaluation follow-up -- 1968-69. University of Hawaii Head Start Evaluation and Research Center, January, 1970.

Jensen, A. R. How much can we boost IQ and scholastic achievement? Harvard Educational Review, 1969, 39, 1-123.

Klaus, R. A. & Gray, S. W. The Early Training Project for disadvantaged children: a report after five years. Monographs of the Society for Research in Child Development, 1968, 33, (Serial No. 120).

Kohlberg, L. Early education: a cognitive developmental view. Child Development, 1968, 39, 1013-1062.

McDill, E. L., McDill, M. S., & Sprehe, J. T. Strategies for success in compensatory education: an appraisal of evaluation research. Baltimore: Johns Hopkins Press, 1969.

Sontag, M., Sella, A. P., & Thorndike, R. L. The effect of Head Start training on the congitive growth of disadvantaged children. Journal of Educational Research, 1969, 62, 387-389.

Stern, C. The Observation of Substantive Curricular Interactions: an objective record of the content of the learning environment in the early childhood classroom. Final Report, UCLA Head Start Evaluation and Research Center, U. S. Office of Economic Opportunity, Project No. 4117, 1970.

Westinghouse Report The impact of Head Start: an evaluation of the effects of Head Start on children's cognitive and affective development. Report to the U. S. Office of Economic Opportunity by Westinghouse Learning Corporation and Ohio University, June, 1969.

Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.